I.A.P.T.

NOVEMBER 1952
VOL. I No. 8

TAXON

Official News Bulletin of the International Association for Plant Taxonomy. Edited and Published for I.A.P.T. by the International Bureau for Plant Taxonomy and Nomenclature, 106 Lange Nieuwstraat, Utrecht, Netherlands

HYBRIDS AND TAXONOMY

by

JIŘÍ PACLT (Bratislava) *

The 3rd edition of the Rules deals with the question: "What is a hybrid in taxonomic respect" in the following manner (Art. 10): "Every individual plant, *interspecific hybrids and chimaeras excepted,* belongs to a species" [italics mine]. According to this conception hybrids are not species. Indeed, further support of this idea may be found in the prepared new edition (Stockholm Rules) in which we read: "if the status of a taxon bearing a binary [= specific] name is changed from that of a species to that of a hybrid or inversally the name of the original author will be maintained but with the addition between brackets of *pro sp.* or *pro hybr.*" (*vide* Taxon **1** : 8, 1951; *quoad obs.* 20). Some time ago it has been shown, however, that some minor modification of Article 10 is necessary because of its partial untenableness in the light of modern plant science (*vide* CAMP, W. H., Amer. J. Bot. **37** : 31, 1950). It has been proposed, therefore, to modify it slightly and to read: "Every individual plant, those of certain categories such as *interspecific hybrids, graft chimaeras, and others excepted,* belongs to a species" [italics mine].

Now, it is a well-established fact that species can and do arise by hybridization. Also, the hybrid organ of many species *having* specific status in modern taxonomic practice (or under the Rules themselves) is generally accepted. Some examples of such species are mentioned by H. W. RICKETT and W. H. CAMP (Bull. Torrey Bot. Club **75** : 498, 1948) and need not be repeated here. Hybridization among natural populations not only creates hybrid forms of doubtful or practically no taxonomic value, it produces sometimes stable and fertile races or species. If sufficient evidence, both morphological and genetical, for their taxonomic status is available, should then the bispecific ancestry be a hindrance to classify them as ordinary taxa?

The complexity of the polymorphic process by which species were and are produced makes it impossible to evaluate generally the different ways of genesis and evolution in taxonomy. If we accept the various forms of hybridization as a criterion for distinguishing between two "basic" series of taxa, i.e. specific (non-hybrid) and hybrid taxa, only a part of possible series of taxa seems to be covered herewith. To be consequent in logic, we must create a nomenclature which would respect all the different mechanisms proved experimentally to participate in the genesis of taxa; a job which seems to be absurd. In my view, the aims of taxonomy are concerned primarily with problems of the relationship and variation of the taxa, and only secondarily with their genesis. If a taxon *C* results from the fertilization of individuals of a taxon *A* by those of a taxon *B*, and the taxa *A* & *B* are well defined, nothing can be said *a priori* about the level of the taxon *C*. Terms like "hybrid" are *physiological* words of designation rather than the expression of *taxonomic* concepts. Of course, the auxiliary symbolics, including full formulae, as applied for similar "categories" should continue to be used for necessary information, especially in more complicated cases (for some discussion of these problems see also CUGNAC, A. DE, Bull. Soc. Bot. France **96** : 60, 1949).

*) Dr J. Paclt, Lamačská cesta 5, Bratislava 9, Czechoslovakia.

Accordingly, I think it quite unappropriate to advocate the proposed use of the terms "nothomorph" and "mixomorph". It has been said — in conformity with the criticized points of view — that the terms "variety" and "form" are properly inapplicable in the taxonomy of hybrid plants (*vide* Bull. misc. Inform. bot. Gard. Kew **1939** : 321, 1939). W. H. Camp (*vide* Amer. J. Bot. **37** : 33, 1950) himself questions somewhat that point: "One can but wonder whether the adoption of *nothomorpha* in addition to the present and long-accepted category of *forma* might not lead to unfortunate results". Moreover, many recognized *formae* are, in fact, the result of introgressive hybridization followed by normal genetic segregation.

Another purely terminological point appears to be closely related to the present questions. Recently, I was invited to send a comment on the "Proposed International Code of Nomenclature for Cultivated Plants" (J. Roy. Hortic. Soc. **77**: 157-173, 1952), including [redacted] the International Code of Botanical Nomenclature (Appendix II). Apart from a note on the proposed terms *nothomorph* and *mixomorph (vide ibid.*, p. 169 & 172), the comment may be summarized as follows:

"The term *binary name* should be deleted throughout the Code. We use a *binary nomenclature* in biology so that any validly published name of a taxon is, in fact, a binary name, whether *uninominal* (as for supraspecific taxa), or *binominal* (as for species), or *trinominal* or *plurinominal* (infraspecific taxa). I propose to reject this term in favour of that of *specific name* which, by the way, has been in general use over a long period. — Thus, we should use the term *specific name* for combinations of a generic name and a specific epithet. It appears possible, however, that the term *binary name* was used in the Code because of an idiosyncratic idea that certain special taxa, primarily hybrids, must not be considered as proper *species*, and, accordingly, their names cannot be termed *specific names.*"

RELAZIONE TRA NUMERO DEI GENERI E NUMERO DELLE SPECIE DELLE GYMNOSPERME E DELLE MONOCOTILEDONI CONSIDERATE NEL „NOMENCLATOR FLORAE ITALICAE".

da

R. Tomaselli (Pavia)

Il problema della relazione tra numero di generi e numero di specie o tra numero di specie e numero di individui ecc. di una popolazione animale o vegetale ha interessato parecchi studiosi, come Chamberlin, Fisher, Corbert e Williams, i quali, ed in particolare quest'ultimo, hanno constatato che tutti i dati riferiti da numerosi tassonomi, riportati graficamente, danno sempre lo stesso tipo di curva, molto simile ad un'iperbole.

Questo fatto molto interessante dimostra che dovrebbe esistere un ordine matematico che rappresenti qualcosa di reale nel complesso della Natura, che i tassonomi cercano di compenetrare, e che i risultati da essi esposti non sono quindi solo un prodotto della loro immaginazione. Tale considerazione ha suggerito quindi lo studio di elaborazioni matematiche per la definizione di distribuzioni teoriche simili a quelle realizzate. Tra esse, quella di Fisher (1943) sembra essere la più rispondente; infatti, dato il notevole accordo tra le curve teoriche e i valori reali riferiti dagli Autori che hanno studiato flore e faune di regioni più o meno vaste, si è portati a pensare che la serie logaritmica da lui proposta sia veramente una buona interpretazione della relazione sopra citata.

Abbiamo perciò voluto vedere se sussista questo accordo tra numero di generi e numero di specie anche nell'interpretazione dei dati esposti nel „Nomenclator Florae Italicae (Pars prima)" recentemente edito da Ciferri e Giacomini (vedi *Taxon*, 1952, **1** (3): 38-39).

Nella Flora esaminata abbiamo considerato separatamente le Gimnosperme e le Monocotiledoni e, in seno ai due gruppi, il numero di generi contenenti tutte le specie (spontanee e coltivate) e il numero di generi con le sole specie spontanee.

Il calcolo viene eseguito, come si è detto, sulla base di serie logaritmiche, con due incognite: x (caratteristica del campione, sempre inferiore a 0) e α (noto come "Index of Diversity")

αx; $\alpha x^2/2$; $\alpha x^3/3$; $\alpha x^4/4$ ..... ecc.

Il valore di α e di x viene calcolato, conoscendo il numero totale dei generi (S) e il

numero della specie (N) osservati, in base alle formule di Fisher:

$S = -\alpha \log_e (1 - x)$ $\quad N = \alpha x/(1 - x)$

Nel nostro caso abbiamo quattro gruppi di S e di N:

Gimnosperme

(1) considerando anche le specie coltivate
S = 43 N = 271

(2) senza le specie coltivate
S = 7 N = 24

Monocotiledoni

(3) considerando anche le specie coltivate
S = 283 N = 1640

(4) senza le specie coltivate
S = 239 N = 1090

Per ogni gruppo bisogna trovare α e x seguendo il sistema di calcolo che qui mettiamo per esteso, come esempio, solamente per il primo gruppo, dando per gli altri solo i valori finali.

Simbolo	*Numero*	*Logaritmo*
S	43	— 1,633468
N	271	+ 2,432969
N/S		0,799501

Dalla tabella 9 di Fisher:

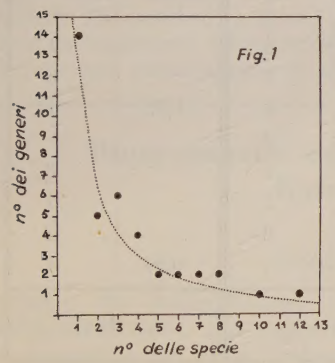
log (N/S)	log (N/α)
— 0,79	— 1,26077
+ 0,80	+ 1,27546
0,01	0,01475

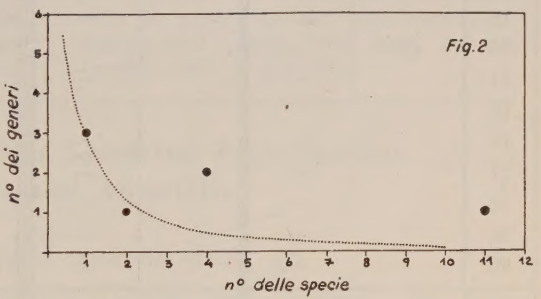
parti proporzionali

0,80	1,27546
0,000499	0,00073
0,799501	1,27473

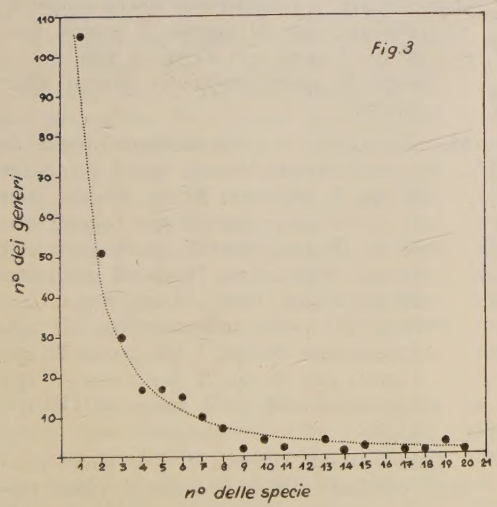
quindi

	Numero	*Logaritmo*
N/α	—	— 1,27473
N	—	+ 2,43297
	14,396	1,15824





• valori osservati
curva calcolata



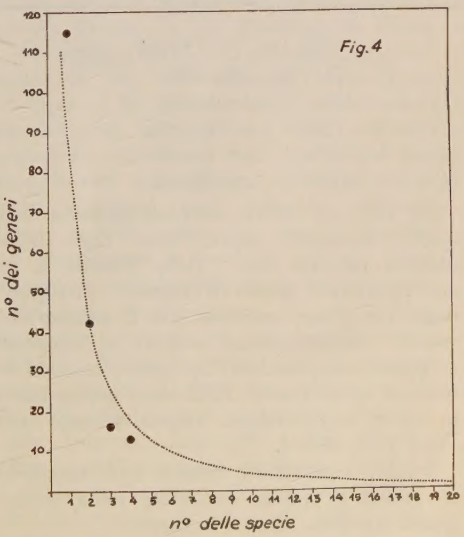


TABELLA 1.

no. delle specie per ogni genere	CIMNOSPERME				MONOCOTILEDONI			
	considerando anche le specie coltivate		senza le specie coltivate		considerando anche le specie coltivate		senza le specie coltivate	
	*	no. dei gen. osservati	*	no. dei gen. osservati	*	no. dei gen. osservati	*	no. dei gen. osservati
1	13,67	14	2,92	3	92,42	105	91,31	115
2	6,49	5	1,28	1	43,61	51	41,83	42
3	4,11	6	0,75	—	27,43	30	25,54	16
4	2,93	4	0,49	2	19,42	17	17,55	13
5	2,22	2	0,35	—	14,66	17	12,87	5
6		2		—		16		5
7		2		—	9,32	10	7,71	4
8	1,19	2		—		7		4
9		—		—		2		4
10	0,86	1	0,09	—	5,49	4	4,15	9
11		—		1		2		3
12		1		—		4		—
13	0,56	—		—		4		1
14		—		—		1		3
15		—		—	2,74	2	1,79	1
16		—		—		2		—
17		—		—		1		3
18		—		—		1		1
19		—		—		3		1
20		—		—	1,93	1	0,86	1
Gruppi di valori	(1)		(2)		(3)		(4)	

$$x = \frac{N}{N + a} = \frac{271}{285{,}396} = 0{,}9496$$

(1) $a = 14{,}396$ $x = 0{,}9496$
(2) $a = 3{,}3223$ $x = 0{,}8784$
(3) $a = 97{,}931$ $x = 0{,}9437$
(4) $a = 99{,}657$ $x = 0{,}9162$.

Le serie di valori, calcolati introducendo quelli dichiarati sopra, sono date nella colonna indicata con * della Tabella 1, in cui riportiamo anche il numero corrispondente dei generi osservati. Per il numero dei generi calcolati siamo arrivati al massimo ai generi comprendenti 20 specie, essendo la serie di valori trovati sufficiente per stabilire le curve rappresentate rispettivamente alle Fig.e 1, 2, 3 e 4.

I valori riguardanti tutte le altre categorie di generi e specie, contenute nella monografia suddetta, sono i seguenti:

Gimnosperme — *considerando anche le specie coltivate:* con 21 specie, 2 generi; con 29 sp., 1 gen.; con 57 sp., 1 gen.
senza le specie coltivate: nessun altro genere.

Monocotiledoni — *considerando anche le specie coltivate:* con 22 sp., 1 gen.; con 25 sp., 2 gen.; con 29 sp., 1 gen.; con 31 sp., 1 gen.; con 32 sp., 1 gen.; con 37 sp., 1 gen.; con 45 sp., 1 gen.; con 48 sp., 2 gen.; con 70 sp., 2 gen.; con 99 sp., 1 gen.; con 112 sp., 1 gen.
senza le specie coltivate: con 21 sp., 2 gen.; con 24 sp., 1 gen.; con 30 sp., 1 gen.; con 39 sp., 1 gen.; con 41 sp., 1 gen.; con 48 sp., 1 gen.; con 115 sp., 1 gen.

Osservando la Tabella 1 e le curve relative, possiamo concludere che i valori tro-

vati per i due gruppi comprendenti anche le specie coltivate (Fig.e 1 e 3) concordano con la curva teorica calcolata, mentre per i due gruppi composti solo dalle specie spontanee (Fig.e 2 e 4) i dati sono troppo limitati perchè si possa pretendere di trovare un accordo tra curva teorica e valori osservati.

Fatta questa astrazione, indipendente dalla volontà degli Autori e possibilità di poter definire una relazione significativa tra numero di generi e numero di specie, possiamo dire che gli A.A. hanno dato, nel loro lavoro, un interpretazione molto accurata della struttura della Flora esaminata e che le previsioni fatte sulla validità del metodo si sono dimostrate ancora una volta esatte.

Istituto Botanico dell'Università — Pavia

SUMMARY

The relation between the number of genera and the number of species in the "Nomenclator Florae Italicae (Pars I)" has been studied. The method proposed by Fisher, based on logarithmic series has been applied. The obtained curves agree with the observed data; this means that the description of the flora, as given by the Authors, is very accurate and that the method has a good validity.

Letteratura citata.

Chamberlin, J. C. (1924) — Concerning the hollow curve of distribution, *Amer. Nat.* **58**: 350-372.

Ciferri, R. e Giacomini, V. (1950) — Nomenclator Florae Italicae (Pars I), *Busca, Ticini.*

Fisher, R. A., Corbert, A. S. and Williams, C. B. (1943) — The relation between the number of species and the number of individuals in a random sample of animal population, *Journ. Ecol.*, **12** *(1)*: 42-58.

Williams, C. B. (1944) — Some applications of the logarithmic series and the index of diversity to ecological problems, *Journ. Ecol.*, **32** *(1)*: 1-44.

——— (1951) — A note on the relative sizes of genera in the classification of animals and plants, *Proc. Linn. Soc. of London*, **162** *(2)*: 171-175.

Biosystematic experiments involving Zephyranthes, Habranthus and Amaryllis

by

Hamilton P. Traub (Beltsville, Md.)

Within the *Amaryllidaceae* the genera *Zephyranthes* Herb., and *Habranthus* Herb., are assigned to the Tribe *Zephyrantheae* on the basis of a number of characters including the spathe which is tubular below for part of its length in contrast with the genus *Amaryllis* Linn. with spathe-valves 2, free to the base, which has been placed in the Tribe *Amarylleae.* In a recent monograph of the Tribe *Amarylleae* (Traub & Moldenke, 1949) it was found desirable to subdivide the species of the genus *Amaryllis* Linn. into two un-named supra-groups of taxons, — (a) the narrow-leaved, small-flowered species (hereinafter referred to as the "narrow-leaved supra-group"), and (b) the broader-leaved, larger-flowered species (hereinafter referred to as the "broader-leaved supra-group").

Within the genus *Amaryllis* Linn., gene exchange was demonstrated over a century and a half ago in the broader-leaved supra-group beginning with × *Amaryllis johnsonii* Johnson ex Herb. *(Amaryllis reginae* Linn. × *Amaryllis vittata* L'Hérit.). The basic chromosome number in this supra-group is x = 11, and the chromosome series includes 2n = 22, 44 and 77 (see Summary in Traub & Moldenke, 1949). All attempts to cross species of the narrow-leaved supra-group with those of the broader-leaved supra-group have uniformly failed. Ficker (1951) reported chromosome studies of two species of the narrow-leaved supra-group, *Amaryllis bifida* (Herb.) Sprengel and *Amaryllis chilensis* L'Hérit., in both cases the diploid chromosome complement is 2n = 18, and the basic chromosome complement of the supra-group, on the basis of this report, is x = 9. This difference in chromosome complements might explain the failure to obtain hybrid progeny between species of these two supra-groups.

Recently, the present writer has obtained a cross between *Amaryllis bifida* (Herb.) Sprengel and *Amaryllis chilensis* L'Hérit., two species in the narrow-leaved supra-group. A detailed report on this work will appear elsewhere.

On the basis of our present knowledge, apparently, the narrow-leaved supra-group is not closely related to the broader-leaved supra-group within the genus *Amaryllis* Linn. This seems to be confirmed on the basis of another series of experiments which are briefly summarized in Table 1, and the text. A more detailed report will appear elsewhere.

The present writer suspected that the species of the narrow-leaved supra-group were closely related to the species of the genus *Habranthus* Herb., and he therefore tested that hypothesis, and obtained reciprocal crosses between *Amaryllis bifida* (Herb.) Sprengel and *Habranthus juncifolius* Traub. The progeny have bloomed and are intermediate between the parents in most characters. All have proved to be self-sterile so far. FLORY (1948) showed that the chromosome complement of *Habranthus juncifolius* Traub is 2n = 14.

In another experiment, *Habranthus juncifolius* Traub was crossed on *Zephyranthes grandiflora* Lindl., which has a chromosome complement of 2n = 48. The progeny thus received a larger proportion of chromosomes from the latter species, and show the influence of that species in a larger measure than that of *Habranthus juncifolius* Traub. The leaves, the spathe of which is tubular below, and the usually radially-symmetrical perigone are similar to those of *Zephyranthes grandiflora* Lindl., but the androecium and gynoecium are bilaterally symmetrical and similar to those of *Habranthus juncifolius* Traub — the stamens and style are definitely declinate, the stamens are much shorter than the style and show a tendency toward the fasciculate grouping. So far all have proved to be self-sterile. Chromosome studies of these progeny will be reported elsewhere later.

The implications of these results are obvious. It is clear that either the Tribe *Zephyrantheae* should be merged with the Tribe *Amarylleae,* or the narrow-leaved supra-group of *Amaryllis* Linn., under the name *Rhodophiala* Presl, which has priority under the International Code, should be transferred to the Tribe *Zephyrantheae*. No final decision on this matter has been reached. At any rate, the genus *Rhodophiala* Presl has to be restored with *Rhodophiala amarylloides* Presl as the type (= *Rhodophiala pratensis* (Poeppig) Traub, *comb. nov.*, syn. — *Amaryllis pratensis* Poeppig, in Fragm. Syn. Pl. Phan. 5. 1833).

TABLE 1. Summary of biosystematic experiments involving *Zephyranthes* Herb., *Habranthus* Herb., and *Amaryllis* Linn. ("×" indicates that a successful cross was made as shown by living progeny.)

Tribe Zephyrantheae				Tribe Amarylleae		
Zephyranthes		*Habranthus*		*Amaryllis* Linn. (Narrow-leaved supra-group)		
Mostly radial floral symmetry [1])		Bilateral floral symmetry		Bilateral floral symmetry		
				Amaryllis bifida (Herb.) Spreng. (2n = 18)	×	*Amaryllis chilensis* L'Hérit. (2n = 18)
		Habranthus juncifolius Traub (2n = 14)	×	Ditto		
Zephyranthes grandiflora Lindl. [2]) (2n = 48)	×	Ditto				

[1]) Style may be straight or more or less declinate.
[2]) Style somewhat longer than stamens and somewhat declinate.

The residual or broader-leaved supra-group of the genus *Amaryllis* Linn., thus becomes a very homogeneous taxon, with 36 species remaining of those admitted before 1949 (Traub & Moldenke, 1949) and with seven additions proposed since 1949 — *Amaryllis ferreyrae* Traub (1950), Peru; *Amaryllis fosteri* Traub (1951), Brasil; *Amaryllis espiritensis* Traub (1951), Brasil; *Amaryllis vanleestenii* Traub (1951), Surinam; *Amaryllis viridorchida* Traub (1951), Brasil; *Amaryllis oconequensis* Traub (1951), Peru; *Amaryllis maracasa* Traub (1952), Brasil. In addition three undescribed species have been determined as new to science, one from Peru and two from Brasil, and will be proposed in 1952 and 1953.

References:

Ficker, Thelma. Chromosomes of two narrow-leaved *Amaryllis* species and the generic type species *Amaryllis belladonna* Linn. Plant Life **7**: 68-71. 1951. See also corrigenda, Plant Life **8**: 2. 1952.

Flory, W. S. Jr. Chromosome studies and their bearing on phylogeny, in *Amaryllidaceae* I. *Habranthus*. Amer. Jour. Bot. **35**: 791. 1948.

Traub, Hamilton P. and Harold N. Moldenke. *Amaryllidaceae:* Tribe *Amarylleae*. 1949. (Publ. American Plant Life Society, box 2398, Stanford, Calif.).

Traub, Hamilton P. "*Amaryllis* species proposed since 1949". Plant Life **6**: 62. 1950; **7**: 26-35. 1951; and **8**: 54-56. 1952.

POEM

to

Dr ELMER D. MERRILL

Oh, Chronica Botanica, ah, what a learned tome!
I read the same with pleasure the moment I got home!
Of all Merrilliana, this is the very gist,
The Lowest Form of Life, my friends, is a Diffusionist!

Now what is a Diffusionist, the layman well may query?
An Anthropologist gone wrong with thinking process bleary!
The center of all Culture is the Valley of the Nile!
Distort all truth to prove this is their credo all the while!

Barley floated down the stream from whence it did not grow!
(Though Barley will not float to-day, the which all farmers know!)
No one knew simply nothin' but the haughty Pharaoh's kin,
And to contradict this Dogma is in truth a mortal sin!

So if you find a Pyramid in whatever land du bist
The maker did not dream it up — he was a plagiarist!

There were two ancient continents, Atlantis and Mu!
This has come down in legend which of course is always true!
Who doubts our pronouncement is but an ignorant clown.....
Why, there's holes in either ocean in the spot where they went down!

When the folks took to the water they were much disturbed in mind.
They took their brain cells with 'em but they left their plant behind!
If the Arnold Arboretum should sink beneath your feet
I s'pose you'd grab an ear of corn or else a sugar beet!

Avaunt, you cautious scientists, De Candolle and the rest
Who use your hair-brained researches to put us to the test!
When every little carving or crack on Easter Isle,
Is in truth a hieroglyphic from the Valley of the Nile!

How sweet our errant fancies to which we fondly cling!
YOU may write a thousand papers but it will not mean a thing!

But we got feelin's, Doctor, and this we cannot brook
America's Linnaeus quotin' Proverbs to a Cook!

Providence, R.I., 1952. Mary Cormack

The fugitive place names "Hamoa" and "Romoa" in Roxburgh's *Flora Indica* errors for Honimoa - Saparua

by

E. D. Merrill (Jamaica Plain, Mass.)

For many years I have been familiar with the name "Romoa" applied in Roxburgh's *Flora Indica* to an island presumably in Malaysia. I had even assumed that it was probably an error for Honimoa, now known as Saparua, a small island off the east end of Amboina in the Moluccas, but never had occasion to try to prove the point.

Recently in preparing a list of Roxburgh's rather surprisingly large number of Malaysian species I noted another island name "Hamoa". Being impressed with the similarity of the two names I turned to all the standard British, German, Dutch, Italian, and American atlases, but neither name appears in any of them. Realizing that Roxburgh considered only those species known to him from India proper, Chittagong, and the Malaysian region (other than a few from Ceylon, China, Mauritius and still fewer from Polynesia) I thought, as apparently did Miquel, that the name of some Malaysian island was involved; but not until after considerable trouble could I prove that both "Hamoa" and "Romoa" were actually errors for Honimoa.

The first clue was developed in Brussels, where in 1951 in the course of a few days of random sampling in a search for authentically named Roxburgh duplicates in the Martius herbarium, at the Jardin botanique de l'Etat, I found an isotype of one of Roxburgh's species which was published as having come from "Hamoa". This was properly labelled by Roxburgh himself as having been collected in Honimoa. The "Romoa" case was settled later by locating an unlisted *nomen nudum* where the locality was actually indicated by Roxburgh as "Humumoa". Thus the problem appertaining to these two fugitive names is now solved.

For *Ehretia setosa* Roxb. *) Fl. Ind. ed. Carey & Wall. **2**: 342. 1824, ed. Carey **1**: 598. 1832, the locality is given as "Island of Hamoa", by Miquel, Fl. Ind. Bat. **2**: 921. 1858, indicated as "Eiland Hamoe". In *Index Kewensis* this appears as "Ins. Samoa". As noted above the extant Roxburgh specimen labelled in his own handwriting was from *Honimoa*. It is not an *Ehretia* but is a representative of the genus *Tournefortia* and probably belongs with *T. sarmentosa* Lam. *Buereria setosa* G. Don (1837) is a synonym.

The case of *Eugenia leptosperma* Roxb. Hort. Beng. 92. 1814, *nom. nud.*, Fl. Ind. ed. Carey **2**: 495. 1832, *descr.*, sphalm. *"leptosperuma"* is clear in spite of the fact that when the description was published the locality was indicated as "Island of Romoa". This appears in *Index Kewensis* within quotes, indicating that the compilers of that indispensable work were unable to locate an island by that name. The *nomen nudum* of 1814 was overlooked. In the *Hortus Bengalensis* the locality is indicated as a variant or erroneous spelling of Honimoa, as "Humumoa". Thus "Romoa" is now definitely placed. *See addition on page 135.*

Honimoa does not appear in any modern atlas, i.e., in any that I have examined that were issued in the past fifty years, even as an alternate name. But a century and a half ago it was used to designate what now

*) In the same family, extant Roxburgh material at Brussels, not only shows that this *Ehretia* is a *Tournefortia*, but that *Ehretia uniflora* Roxb. *(Buereria uniflora* G. Don, 1837), also accepted by Miquel and others, is identical with *Rotula aquatica* Lour. (1790), type from Indo-China (see Bunting's critical note on Loureiro's type, Jour. Bot. **47**: 270. 1909). Loureiro's genus is clearly synonymous with *Rhabdia* Mart. (1826), but I am not so sure that *R. lycioides* Mart. (type from Brazil) is specifically identical with *Rotula aquatica* Lour. (type from Indo-China). In this same family *Cordia? dubiosa* Blume, Bijdr. 844. 1826, type from Bantam, Java, was clearly based on parts of two unrelated plants. The "calice fructigero tubuloso striato" may appertain to *Cordia*, but the rest of the description, considerably amplified by Miquel, Fl. Ind. Bat. **2**: 915. 1858, is otherwise all *Elaeocarpus* as is the one extant specimen in the Rijksherbarium, Leiden, so named by Blume. Miquel noted in 1858 that this specimen was then sterile. Blume doubtless added the query because he realized that the vegetative characters were anomalous in *Cordia*. His fruiting calyx must have been a detached fragment from some other specimen; in any case it seems not to have been preserved.

appears on standard maps as Saparua. This is a small island off the east coast of Amboina, Christopher Smith in 1798 to 1801 having apparently visited it several times in his search for living economic species, such as the clove, the nutmeg, and others for introduction into the Calcutta Botanical Garden. He actually introduced a great many Moluccan species as living plants, and others were grown at Calcutta from seeds collected by him. And it is interesting to note how weeds get about through their seeds being in the soil in which the living plants were transported; angleworms are similarly widely distributed on occasion. Roxburgh described various new weed species which appeared in the Calcutta Garden where earth in which the living plants from the Moluccas were packed, was thrown in the Garden.

What happened in reference to the inadvertent coining of the island names "Hamoa" and "Romoa" seems to be clear. Roxburgh had finished the manuscript of his *Flora Indica* before he left Calcutta for England in 1813 on account of ill health. This manuscript he took home with him as it was his intention to improve it and eventually publish the work in England. Unfortunately he failed to regain his health, dying in Edinburgh Feb. 18. 1814. Being endowed, as Sir George King expressed it, "with the characteristic caution of his nationality" he had several copies of his manuscript prepared by native clerks in Calcutta. The copy from which the *Flora Indica* was eventually published was left with Dr Carey. I judge that there was also a copy at the Calcutta Botanical Garden, for in 1819 or 1820 William Jack had a transcript prepared for his use in his Penang, Singapore, and Sumatra venture, 1819-1822 *). Clearly clerical errors were involved, for the clerk who prepared Dr Carey's copy misspelled the initial letter of Honimoa as "Ha" and as "Ro", while at the same time dropping the middle syllable.

Griffith **) in first publishing Roxburgh's fern descriptions complained of the previously published text of the *Flora Indica* as "being so disfigured by obscurities and typographical errors". When Clarke had the Carey edition of 1832 reprinted in 1884, he wisely decided to make it a "verbatim and literal one; all errors of the original having been faithfully retained". He did, however, republish Roxburgh's fern descriptions first printed by Griffith in 1844 from the copy of Roxburgh's manuscript left by the latter at the Calcutta Botanical Garden. It is suspected that a fair percentage of the obscurities complained of may be of purely clerical origin to be charged to the clerk who prepared the copy from which the Roxburgh texts were eventually printed seven, ten, eighteen, and thirty years after that author's death. Surely no editor could be expected to detect such errors in place names as "Hamoa" and "Romoa" for Honimoa.

Roxburgh had very little material from northern India, such as Nepal, Sylhet, etc. In general, as Clarke noted, the text is a flora of the plains Calcutta to Madras, with a considerable number of species from altitudes up to 2,000 ft. in the Circar Hills, northern Madras. The number of species based wholly on Malaysian material is very much greater than one thinks without making a critical examination of the several texts involved, somewhere in the neighbourhood of 500 species. Those definitely located as Amboina, Honimoa (Saparua), Banda, etc. may be accepted as correctly localized, but a great many of the species localized as from the Moluccas clearly never came from that part of Indonesia, but rather from Penang, Singapore, the Malay Peninsula, and Sumatra. However Clarke's statement that by the term "Moluccas" Roxburgh meant Malaya needs to be modified, for some of the "Moluccan" species did come from that region. As Roxburgh's type collections are located and intensively studied doubtless this situation will be clarified. In my earlier work I accepted "Moluccas" as used by Roxburgh as meaning the general part of the Malay Archipelago now known as the Moluccas. But it can now be proved that a number of these "Moluccan" species actually came from Penang, and nothing closely allied to them occurs in eastern Malaysia. The case of *Sonerila moluccana* Roxb., said to have been from the Moluccas, is an excellent illustration; see the discussion of this in my paper on William Jack's species mentioned above. The type was surely from Penang, and no species of its group occurs in Eastern Malaysia; yet there are those who refuse to accept Roxburgh's species in spite of Jack's later and much more complete description.

---

*) Merrill, E. D. William Jack's genera and species of Malaysian plants. Jour. Arnold Arb. **33**: 199. 250. *pl. 1.* 1952.

) Calc. Jour. Nat. Hist. **4: 463-520. *pl. 26-34.* 1844.

LOCALIZATION OF MYCOLOGICAL TYPE SPECIMENS IN ITALY

by

R. Ciferri (Pavia)

In the past century the italian school of mycology played a leading rôle in this branch of botany; a leadership culminating with the work of Saccardo P. A. and his school. In this century (and up to 1920) many specialists were active, and, since the type specimens are scattered over a number of Italian botanical institutions, their localization is a often tedious task even for italian students.

To facilitate research, the following list was drafted, partly based on our own knowledge, partly on information courteously provided by our colleague-directors of the italian botanical institutions. Up to now the existence of mycological type specimens of the following students is known to us (only authors mentioning specimens before the year 1925 are considered here):

Alba (Cuneo) — Istituto Tecnico Agrario Specializzato: Cesati V., Ferraris T., Ferro G., Massa C.

Avellino — Istituto Tecnico Agrario Specializzato: Casali G., Saccardo P. A., Trotter A.

Bologna — Facoltà Veterinaria dell'Università: ? Bertoloni A., Cocconi G., Morini F.

Bologna — Istituto Botanico dell'Università: ? Cugini G., Morini F.

Catania — Istituto Tecnico Agrario Specializzato: ? Baccarini P., Scalia G.

Firenze — Istituto Botanico dell'Università: Baccarini P., Baglietto F., Carestia G., Caruana-Gatto A., Cesati V., Fiori A., Petri L., Pirotta R., Raddi G., Savelli M. (many exotic type specimens of the Herbaria Beccari O., Levier E., Webbianum and of the Colonial Herbarium).

Firenze — Istituto di Patologia Forestale dell'Università: Fiori A., Massa C., Petri L.

Genova — Istituto Botanico dell'Università: all herbaria were destroyed by fire during the war: Baglietto F., De Notaris G., Penzig O. (see under Stazione di Patologia Vegetale di Roma).

Milano — Istituto di Patologia Vegetale dell'Università: Brizi U., Traverso G. B.

Modena — Istituto Botanico dell'Università: Mori A.

Napoli — Istituto Botanico dell'Università: Briganti F., Cavara F., Cesati V., Cufino L., ? Licopoli G., Pasquale G. A.

Padova — Istituto Botanico dell'Università: Abbado M., Anzi N., Arcangeli G., Avetta C., Baccarini P., Baglietto F., Balbis G. B., Balsamo G., Barsali E., Battarra G. A., Beccari O., Belli S., Berlese A., Berlese A. N., N., Beltrami V., Bizzozzero G., Bresadola G., Briosi G., Brizi U., Carestia A., Caruana-Gatto A., Cavara F., Cesati V., Comes V., Cuboni G., Cufino L., De Notaris G., De Toni G. B., Ferraris T., Fiori A., Gabotto L., Licopoli G., Macchiati L., Mancini V., Marcucci M., Martelli U., Massalongo A. B., Massalongo C., Mattei G. E., Mattirolo O., Micheletti L., Mori A., Morini F., Moris G. G., Noelli A., Paoletti G., Pasquale F., Pasquale G. A., Passerini G., Peglion V., Penzig O., Pirotta R., Pollacci G., Saccardo D., Saccardo P. A., Savi G., Scalia G., Scortechini R., Severini G., Spegazzini G., Tassi F., Terracciano A., Traverso G. B., Trotter A., Venturi A., Vittadini C., Viviani D., Voglino P., etc.

Palermo — Istituto Botanico dell'Università: Borzi' A., Inzenga G., Mattei G. E.

Parma — Istituto Botanico dell'Università: Avetta C., Passerini G.

Pavia — Istituto Botanico dell'Università e Laboratorio Crittogamico Italiano: Bianchi G., Briosi G., Cattaneo A., Cavara F., Farneti R., Garovaglio S., Gibelli G., Maffei S. L., Magnaghi A., Mameli E., Montemartini L., Mutto E., Polacci G., Rota-Rossi G., Tognini F., Traverso G. B., Turconi M.

Perugia — Istituto Botanico dell'Università: Severini G.

Pisa — Istituto Botanico dell'Università: Arcangeli G., Barsali E., ? Cumino A., Savi G.

Portici (Napoli) — Istituto di Patologia Vegetale dell'Università: Bresadola G., Carestia G., Cavara F., Cesati V., Comes O., De Notaris G., Licopoli G., Mattei G. E., Saccardo D., Saccardo P. A., Tassi F., Trotter A., etc.

Roma — Istituto Botanico dell'Università: Bagnis G., Brizi U., Celotti L., Cesati V., De Notaris G., ? Maratti G. F., Marcello L., Pirotta R., Terracciano A., etc.

Roma — Stazione di Patologia Vegetale: Cuboni G., Pantanelli E., Peglion V., Pen-

zig O. (Fungi agrumicoli), Peyronel B., Petri L., Traverso G. B.

Siena — Istituto Botanico dell'Università: Nannizzi A., Pollacci G., Tassi F., etc.

Torino — Istituto Botanico dell'Università: Balbis G. B., Bresadola G., Colla L., De Notaris G., Gibelli G., Mattirolo O. (very many extra-italian types of Fungi hypogaei), Noelli A., Vittadini C., etc.

Torino — Laboratorio Sperimentale di Fitopatologia: Bongini V., Voglino P.

Verona — Civico Museo di Storia Naturale: Massalongo C. (many types in the Herbarium Pollini).

In addition to italian types, a great number of extra-italian types are conserved in most Herbaria, chiefly of Padova and Pavia and from 1880 to 1920, as, e.g.:

Allescher A., Arthur J. C., Baker C. F., Balansa P., Bartolomew E., Berkeley E. M. J., Bommer J., Brenkle J. F., Brinkmann W., Bubak F., Clinton G. P., Cooke M. C., Desmazières J., Doassans E., Ducomet V., Earle F. S., Eliasson A. G., Ellis J. B., Eriksson J., Everarth B. M., Fairman C. E., Farlow C., Fautrey F., Fischer E., Fries E. M., Fuckel L., Garret A. O., Grove W. B., Harkness H. W., Hennings P., v. Höhnel F., Hollos L., Holway E. W. D., Jaczewski A., Jaap O., Kabat J. E., Karsten P. A., v. Keissler K., Kellerman W. A., Klotzsch J. F., Kmet A., Komarow W., Krieger W., Kühn J., Kunze J., Lagerheim G., Lasch W. G., Léveillé J. H., Libert M. A., Lindau G., Linhart G., Link H. F., Lloyd C. G., Lloyd J. U. Mac Alpine D., Maire R., Magnus P., Malbranche A., Mangin L. A., Marchal E., Massee G. E., Migula W., Moeller A. F., Morgan A. P., Nees v. Esenbeck T. F. L., Newodowski G., v. Niessl G., Opiz P. M., Oudemans C. A., Patouillard N., Patterson F. W., Petrak F., Phillips W., Plowright C. B., Prillieux E. E., Pringle C. G., Rabenhorst G., Raciborski M., Ravenel H. W., Rehm H., Rick J., Romell L., Roumeguère C., Schneider W. G., Schroeter J., Seymour A. B., De Seynes J., Serebrianikow J., Shear C. L., Swingle W. T., Sydow H., Sydow P., Thaxter R., Theissen F., Therry J. J., Thümen F., Torrend W., Trabut L., Tranzschel W., Trelease W., Ule E., Vestergren T., Vize J. E., Voss X., Vuillemin P., Weir J., Westendorp G. D., Winter G., Zopf W., Zukal H.

Botanical Institute and Italian Cryptogamic Laboratory, The University of Pavia.

MONOCOTYLEDONS FOR ANATOMICAL INVESTIGATION

by

C. R. Metcalfe (Kew) *)

Since the publication, in 1950, of Metcalfe and Chalk's 2 volumes entitled 'Anatomy of the Dicotyledons', much of the time of the staff of the Jodrell Laboratory at Kew has been devoted to examining the structure of Monocotyledons. The ultimate aim is to publish a companion volume dealing with this group of plants.

One of the main difficulties is to obtain specimens of taxonomically important Monocotyledons that are not, or only inadequately, represented amongst the plants in cultivation at Kew. With plants, such as many xerophytes, in which the tissues are generally well supported by sclerenchymatous or other mechanical cells, it is frequently possible to revive herbarium specimens sufficiently for the anatomical structure of the vegetative organs to be examined.

Considerable success in reviving material of this kind has been obtained, but the result is not always satisfactory because the cells are not fully restored to their original shapes, and it is consequently quite easy to gain a wrong impression of, or to misinterpret, the structure. For this reason it is essential to work, as far as circumstances permit, with accurately named material fixed and preserved in a liquid medium. The genera required come from many different parts of the world, but it is only by working with material from as many sources as possible that it will be possible to build up a picture of the structure of the Monocotyledons as a whole that will be sufficiently complete to have any real value. Since it is hoped that the results of this investigation will ultimately be of value to botanists in

*) Address: C. R. Metcalfe, Keeper, Jodrell Laboratory Royal Botanic Gardens, Kew, Surrey, Great Britain.

many countries, it will be greatly appreciated if field collectors, and workers at botanic gardens who are able and willing to supply specimens will kindly do so.

The following lists have been drawn up for the guidance of those who are willing to co-operate, and in order to ensure that special efforts will be made to obtain representatives of those genera which are most urgently needed. Notes on the type of material required, and on methods of preservation and transport, have also been added.

Type of Material required.

1. It is not necessary to supply material of a great number of species of any one genus. The immediate object is to make a broad survey of the anatomy of the Monocotyledons as a whole, rather than to concentrate on interspecific differences. When a genus includes species that are widely different in habit, representatives of each habit type will be welcome.
2. The type of material required will vary according to the nature of the plant, and collectors should use their discretion in selecting material.
3. A small amount of flowering material should be included so that the identity can be checked.
4. Leaves are important. When small enough, one or more whole leaves should be supplied. When leaves are very large e.g. Musa or Palms, a portion from the centre of the lamina, or pinnae from half way along the length of the rachis should be supplied. Portions of the petiole or base of the leaf would be welcome.
5. Portions of the inflorescence axis should be included if and when available.
6. Portions of the aerial stems should be supplied from those plants which possess them.
7. Rhizomes, bulbs, corms and roots are usually less important than the aerial parts of the plants. Material belonging to these categories will, however, be helpful whenever it is practicable to send it.
8. Wherever possible, material should be fixed in formalin acetic alcohol [70 per cent alcohol 850 ml., formaldehyde (40 per cent) 100 ml., glacial acetic acid 50 ml.], and it can be allowed to remain in this fluid until required for use. If formalin acetic alcohol is not available, formalin (4 per cent) alone, or ethyl alcohol (60 per cent) can be used. Formalin alone has the disadvantage that it often causes the tissues to turn black, for which reason its use should be avoided unless there is no alternative. Field collectors may find it convenient to use hydroxyquinoline sulphate, a yellow powder that can be easily carried, and which has only to be dissolved in water before use. The exact concentration of this last chemical is not important, and it is often sufficient to gauge the quantity e.g. in the lid of a bottle and to dissolve it in water in a bottle of which the capacity is known. Alternatively weighed quantities can be carried in paper packets. Hydroxyquinoline sulphate should be used at a concentration of 0.5—1.0 per cent, the stronger solution being suitable for plants with a thick cuticle that is difficult to penetrate. The addition of a few drops of acetic acid facilitates penetration.
9. In the past, fixed material has been transported from one country to another in sealed tins which also contain blotting paper soaked in formalin acetic alcohol. Quite recently, very successful results have been secured, and much time and expense has been saved, by packing the material in small bags made of a waterproof plastic material known as polythene. (Cellophane is not sufficiently waterproof). It is desirable to include cotton wool or blotting paper soaked in the preserving fluid in each bag before it is sealed. Material has been sent in these bags from Tasmania to Kew, from Kew to Sweden, as well as for shorter distances. Every consignment arrived in perfect condition.
10. Any material will be welcome if it is not possible to send all of the items mentioned under headings 2—6 above. For example leaves only would be very valuable even if it was not possible to send other portions of the plant.
11. Seeds for sowing in the gardens at Kew will be appreciated. This applies particularly with relatively small species that can be readily raised from seed without requiring a large amount of greenhouse space.

AFRICA, SOUTH

Agavaceae
Dracaeneae
Sanseviera +

Alismataceae
* Rautanenia (S.W. Afr).

Amaryllidaceae
Agapantheae
Agapanthus +
Tulbaghia
Amaryllideae
Amaryllis +
Brunsvigea
Nerine +
Crineae
Cyrtanthus
Vallota
Haemantheae
Buphane
* Carpolyza
Clivia +
Hessaea
Strumaria
Zephyrantheae
* Apodolirion
* Gethyllis

Araceae
Richardeae
Zantedeschia
(Richardia) +
Stylochitoneae
* Stylochiton
* Zamiculcas

Commelinaceae
Coleotrype
Cyanotis

Cyperaceae
Cariceae
* Hemicarex
* Schoenaxiphium
Cypereae
* Hemichlaena
Hypolytreae
* Chrysithrix
Rhynchosporeae
* Asterochaeta
* Carpha
* Costularia
* Epischoenus
* Schoenus
* Tetraria
* Trianoptiles

Haemodoraceae
Haemodoreae
* Barberetta
* Dilatris
* Lanaria
* Wachendorfia

Hydrocharitaceae
sub. fam. Vallisnerioideae
Anarchariteae
* Lagarosiphon
Blyxeae
* Blyxa
Ottelieae
* Ottelia

Hypoxidaceae
* Paurida

Iridaceae
Antholyzeae
* Anacalanthe
* Anapalina
* Anomalesia
* Antholyza
* Curtonus
* Homoglossum
* Kentrosiphon
* Pentamenes
Aristeae
Aristea +
* Chleanthe
* Klattia
* Witsenia
Croceae
* Galaxia
Romulea +
* Syringodea
Gladioleae
Acidanthera
Babiana
Crocosmia
Gladiolus +
* Melasphaenela
Sparaxis
* Synnotia
Tritonia +
Irideae
Dietes
Moraea +
Ixeae
Dierama +
Freesia +
* Geissorhiza
* Hesperantha
Ixia +
Lapeyrousea +
Micranthus
* Pillansia
* Streptanthera
Watsonia +
Sisyrincheae
Bobartea
Tigrideae
Ferraria
* Hexaglottis
Homeria

Juncaceae
* Prionium

Liliaceae
Aloineae
Aloe +
Apicra
* Chamaealoe
* Chortoliron
Gasteria
Haworthia
* Leptaloe
Anguillarieae
* Baeometra
* Dipidax
* Neodregea
* Wurmbea
Asphodeleae
Bulbine +
* Builbinella
* Caesia
* Nanolirion
Bowieae
Bowiea
* Eriospermum
* Schizobasis
Iphigenieae
* Androcymbium
* Camptorrhiza
* Iphigenia
* Ornithoglossum
Kniphofieae
Kniphofia +
* Notosceptrum
Massonieae
* Daubenya
Massonia
Scilleae
Albuca
* Androsiphon
* Brachyscypha
Dipcadi
Drimia
Eucomis +
Galtonia +

---

* of special interest; + available, more would be welcome.

Hyacinthus +
Lachenalia +
* Litanthus
Ornithogalum +
* Polyxena
* Pseudogaltonia (S.W. Afr.)
* Rhadamanthus
Scilla +
Urginea +
* Urgineopsis
Veltheimia
* Whiteheadia
Tricyrtideae
Sandersonia
Uvularieae
Gloriosa +
Littonia
Sandersonia
* Walleria

Philesiaceae
Behnia

Strelitziaceae
Strelitzia +

Velloziaceae
Vellozia

Zingiberaceae
Hedychieae
* Siphonochilus
Zingibereae
* Renealmia

AFRICA, TROPICAL

Eriocaulaceae
Mesanthum
Paepalanthus
Syngonanthus

Tecophilaceae
Cyanastrum

Burmanniaceae
Gymnosiphon
Burmannia

Thismiaceae
Afrothismia
Oxygyne

Alismataceae
Burnatia
Limnophyton
Lophotocarpus
Wiesneria

Amaryllidaceae
Cryptostephanus

Butomaceae
Tenagocharis

Commelinaceae
Aneilema
Anthericopsis
Buforrestia
Cyanotis
Floscopa
Forrestia
Palisota
Pollia
Polyspatha

Cyperaceae
Torulinium
Microdracoides (Leaves & Woody part)
Ascolepis
Hypolytrum
Mapania
Remirea
Bulbostylis
Fimbristylis
Fuirena
Liphocarpha
Pentasticha
Catagyna (Eriospora)
Scleria

Hydrocharitaceae
Blyxa
Ottelia

Marantaceae
Halopegia

Zingiberaceae
Ranealmia
Costus
Curcuma

AMERICAN CONTINENT

Agavaceae
Clistoyucca (Cal.)
Hesperaloe (Cal.)
Prochynanthes (Mex.)
Pseudobravoa (Mex.)

Alstroemeriaceae
Leontochia (Chile)
Schickendantzia (Andes)

Amaryllidaceae
Gilliesieae
Ancrumia
Erinna
Gethyrum
Gilliesia (Chile)
Miersia
Solaria
Speea
Trichlora

Burmanniaceae
Apteria (Tr. Am.)
Campylosiphon (Braz.)
Cymbocarpa (Tr. Am.)
Dictyostegia (Tr. Am.)
Dipterosiphon (Braz.)
Hexapterella (Braz.)
Miersiella (Braz.)

Butomaceae
Astenia (Urug.)
Hydrocleis (Trop. S. Am.)

Comelinaceae
Anthyrocarpus (C. & S. Am.)
Callisia (id.)
Campelia (Mex., Braz.)
Descentaria (id.)
Leptorrheo (Tr. Am.)
Neomandonia (Mex., C. Am.)
Setcreasia (Tex., Mex.)

Corsiaceae
Arachnites (Chile)

Cyclanthaceae
Sarcinanthus (C. Am.)
Stelestylis (Braz.)

Cyperaceae
Androtrichum (S. Am.)
Becquerelia (Tr. Am.)
Bisboeckeleria (E. Tr. S. Am.)
Calyptrocarya (Tr. Am.)
Cephalocarpus (Braz.)
Chillonia (Chile)
Cryptanium (Tr. Am.)
Dichromena (N. Am.?)
Didymia (Chile)
Diplasia (Tr. Am.)
Dulichium (N. Am.)
Everardia (Gui.)
Fintelmannia (Braz.)
Lagenocarpus (Tr. Am.)
Mapariopsis (Braz.)
Psilocarya (N. Am.)
Pterosclerya (Tr. Am.)

Dioscoreaceae
Epipetrum (Chile)

Haemodoraceae
Hagenbachia (Braz.)
Lachnanthes (N. Am.)
Schiekia (Tr. Am.)
Xiphidium (Tr. Am.)

Hydrocharitaceae
Egeria (S. Am.)

Iridaceae
Calydores (Am.)
Eleutheryne (Tr. Am.)
Nemastylis (Am.)
Solenomelus (Chile)
Sphenostigma (Tr. Am.)
Symphaeostemum (S. Am.)

Juncaceae
Andesia (Andes of Arg.)
Distichia (S. Am. Andes)
Oxychloe (id.)

Mayacaceae
Mayaca (S.E. U.S.A., Tr. Am.)

Rapateaceae
Cephalostemon (E. Tr. S. Am.)
Monotrema (id.)
Saxofridericia (id.)
Schoenocephalum (Braz.)
Spatanthus (E. Tr. S. Am.)
Stegolepis (id.)

Restionaceae
Leptocarpus (Chile)

Strelitziaceae
Phenakospermum (Braz., Gui.)

Tecophilaceae
Conanthera (Chile)
Tecophilea (id.)
Zephyra (id.)

Thismiaceae
Glaziocharis (Braz.)
Myostoma (Braz.)
Ophiomeris (Braz.)
Sarcosiphon (N. Am.)
Triscyphus (Braz.)
Triurocodon (id.)

Velloziaceae
Barbacenia (Braz.)

Xyridaceae
Abolboda (Tr. Am.)

Zingiberaceae
Dimerocostus (Tr. Am.)
Monocostus (Peru)

AUSTRALIA

Agavaceae
Doryanthes +

Alismataceae
* Caldesia
Damasonium +

Amaryllidaceae
Eucharideae
Calostemma
Euryclis +

Araceae
Acoreae
* Gymnostachys
Pothoieae
Pothos

Butomaceae
* Tenagocharis (Butomopsis)

Commelinaceae
* Cartonema (Trop. Aust.)

Cyperaceae
Hypolytreae
* Chorisandra
* Exocarya
* Lepironia
Rhynchosporeae
* Arthrostylis (Tr. Austr.)
* Carpha
* Caustis
* Cyathochaeta
* Evandra
* Gahnia
* Gymnoschoenus
* Lepidosperma
* Mesomelaena
* Tetrariopsis
* Tricostularia

Haemodoraceae
Conostyleae
Anigozanthos +
* Blancoa
* Conostylis
* Macropidia
* Tribonanthes
Haemodoreae
* Haemodorum
* Phlebocarya

Hydrocharitaceae
Blyxeae
* Blyxa
Ottelieae
Ottelia
Vallisnerieae
* Maidenia
Vallisneria +

Iridaceae
Aristeae
Patersonia
Sisyrincheae
Diplarrhena
Libertia +
Orthosanthus +

Juncaginaceae
* Cycnogeton
* Maundia (E. Austr.)

Liliaceae
Anguillarieae
* Anguillaria
* Wurmbea
Asphodeleae
* Agrostocrinum
Arthropodium +
* Bulbinopsis
* Caesia
* Chamaescilla
* Corynotheca
* Dichopogon (E. Austr.)
* Herpolirion
* Hodgsoniola
* Thysanotus
Dianelleae
* Stypandra
Iphigenieae
* Iphigenia
* Reya
Johnsonieae
* Alania
* Arnocrinum
* Bartlingia
* Borya
* Hensmania
* Johnsonia
* Sowerbaea
* Stawellia
* Tricoryne
Kniphofieae
Blandfordia
Milligancieae
Astelia +
Polygonatae
* Drymophila
Scilleae
Muscari +
Uvularieae
Kreysigia
* Schelhammera

Palmae
Areceae
Caryotideae
Arenga
Caryota

Euareceae
Archontophoenix
Hydriastele
Linospadiceae
Bacularia
Calyptrocalyx
Oncospermeae
Clinostigma
Ptychospermeae
Ptychosperma
Corypheae
Licuala
Livistona

Pandanaceae
Freycinetia

Philesiaceae
* Elachanthera
* Eustrephus
* Geitonoplesium

Philydraceae
* Helmholzia
Orthothylax
* Philydra
* Philydrella

Smilacaceae
* Ripogonum

Zingiberaceae
Costeae
* Tapeinochilus (N. Austr.)
Zingibereae
Ammomum

INDIAN SUBCONTINENT

Apostasiaceae
Adactylus
Apostasia

Roxburghiaceae *(Stemonaceae)*
Stemona
Stichoneuron

Trichopodaceae
Trichopus

Liliaceae
Campylandra
Gonioscypha
Tupistra
Iphigenia

Marantaceae
Clinogyne
Donax
Phacelophrynium
Stachyphrynium

Smilacaceae
Heterosmilax

Zingiberaceae
Boesenbergia
Hitchenia
Roscoea
Stahlianthus
Plagiostachys

MALAYAN REGION

Apostasiaceae
Adactylus
Apostasia

Petrosaviaceae
Petrosavia

Stenomeridaceae
Stenomeris

Thismiaceae
Sarcosiphon
Thismia

Flagellariaceae
Flagellaria

Lowiaceae
Orchidantha

Roxburghiaceae
Stichoneuron

Trichopodaceae
Trichopus

Alismataceae
Caldesia
Lophotocarpus
Ranalisma
Sagittaria
Limnophyton

Zingiberaceae
Tapeinochilus
Brachychilus
Camptandra
Carenophila
Conamomum
Hitcheniopsis
Odontychium
Achasma
Elettariopsis
Plagiostachys
Riedelia

PHILIPPINE ISLANDS

Stenomeridaceae
Stenomeris

Roxburghiaceae *(Stemonaceae)*
Stemona

Zingiberaceae
Vanoverbergia

Nomenclature Committees

Special Committee for Algae

The attention of the members of this committee and that of algologists in general is drawn to the following publication:

Paul C. Silva — A review of nomenclatural conservation in the Algae from the point of view of the type method.

University of California Publications in Botany **25** (4): 241-324. 1952. This important paper is bound to have great influence on future discussions and decisions on nomina conservanda in the Algae [Chlorophycophyta, Chrysophycophyta (exc. Bacillariophyceae), Phaeophycophyta, Myxophycophyta and Rhodophycophyta]. The existing conserved names are discussed together with the newly proposed ones and a number of new proposals is made.

Special Committee on Nomenclature of Cultivated Plants

The proposed International Code of Nomenclature for Cultivated Plants has recently been published in the *Journal of the Royal Horticultural Society* **77**: 160-172. 1952. The text as presented embodies the decisions of the joint *International Committee on Horticultural Nomenclature and Registration* (the so-called London Committee) and the *Special Committee on Nomenclature of Cultivated Plants* (the so-called Stockholm Committee). This text has been reproduced in Appendix III of the International Code of Botanical Nomenclature (Regnum Vegetabile **3**: 53-63, 204-214. 1952).

The text was reconsidered at the Thirteenth International Horticultural Congress held in London (September 1952). The German Nomenclature Committee (Nomenklatur-Ausschuss im Zentralverband des Deutschen Gemüse-, Obst- und Gartenbaues e.V.; President: Prof. R. Maatsch, Hannover) presented a mimeographed report in which several new suggestions were made.

A number of alterations and amendments were adopted. We hope to publish a short report on the decisions of the section of Nomenclature in the next issue of Taxon.

News from the Herbaria

H. K. AIRY-SHAW, B. A., F.L.S., F.R.E.S.

It is with much regret that we have to announce the resignation from the Kew Staff of Mr. H. K. Airy Shaw. Mr. Shaw was born in April 1902 and received his early education at Woodbridge Grammar School, in Suffolk. In 1921 he went to Corpus Christi College, Cambridge. After taking part I in the Classical Tripos, he specialized in Botany and graduated in the Natural Science Tripos in 1925.

He was first appointed to the Kew Staff in June 1926 and became a Principal Scientific Officer in October 1948, after having held a number of more junior appointments.

Mr. Shaw was always reserved and independent in nature and outlook but his great funds of knowledge, both classical and botanical, were always freely at the service of his colleagues and of visitors to the Kew Herbarium, where he worked at various times on the floras of Europe, Orient, China, Japan and the Himalayas until 1935, when he became more particularly interested in Malaysia, especially British Borneo; he was in charge of the tropical Asia work of the Herbarium.

Mr. Shaw's detailed work on speciation is reflected in his work on the genera *Asperula, Allium, Gaultheria, Agapetes, Dentella, Deutzia, Leycesteria, Gonystylus, Pentaphragma, Dioncophyllum* and many more, whilst his appreciation of generic limits is shown in his establishment of such genera as *Neo-uvaria, Caryodaphnopsis, Symplococarpon, Aëtoxylon, Habropetalum, Triphiophyllum, Haplothismia* and others.

His interest in the wider aspects of phylogeny and affinity is most accurately shown, however, in his work on *Sphenocleaceae,* which he resuscitated, and his more recent establishment of the *Pentaphragmataceae* and *Dioncophyllaceae.*

In addition to his purely taxonomic work, Mr. Shaw found time to learn the Russian language and the result is to be found in his various translations and summaries of Russian botanical literature. The latest (but not, we hope, the last) of these, *"Iris* in U.S.S.R.",

is in the press. During the 1939-45 war he produced the "Principles of Vegetation of Afghanistan", and other works on vegetation, all mainly based on his own translations from obscure sources.

On the retirement of Miss M. L. GREEN (Mrs T. A. SPRAGUE) and Dr T. A. SPRAGUE in 1945, Mr. SHAW took over their official responsibilities for nomenclature and the *Index Kewensis*. He has published numerous nomenclatural notes, notably on thistles and watercress, whilst his recent account of the distribution of *Pisonia grandis* involved immense nomenclatural and bibliographical researches.

Mr. SHAW's interests were much wider than his botanical activities show. As a pure labour of love he produced a Directory of Natural History Societies, with a supplement, published by the Amateur Entomologists' Society, of which he was a prominent member. Entomology claimed a great part of whatever spare time he allowed himself and his interest in this subject is reflected in his fellowship of the Royal Entomological Society. He edited several contributions, published in the Kew Bulletin, to the Wild Fauna and Flora of Kew Gardens, and he published numerous entomological notes, chiefly concerning *Coleoptera* and *Hemiptera*, in the appropriate entomological journals.

We deeply regret the withdrawal from taxonomy of a worker of such catholic outlook; we offer him our best wishes in his new sphere of activity.

A. A. BULLOCK

A HISTORY OF SUCCULENT PLANTS

Succulent plants have survived many fluctuations in popularity, although the present-day vogue for their cultivation in England is probably greater than ever before. Their introduction and history from the earliest recognizable figures on Egyptian temples onwards makes an interesting story for which I have been collecting data for a number of years. One riddle remains unsolved, however: the first book ever devoted wholly to succulent plants. Credit is usually given to RICHARD BRADLEY'S "Historia Plantarum Succulentarum" (1716-27), but in the Catalogue of Printed Books at the end of A. AMHERST'S "A History of Gardening in England", Edn. II, 1896, are included:

"BRADLEY, R. Paintings of his Succulent Plants, with written accounts of them 1706.

——— — A Treatise on Succulent Plants London 1710."

Has anyone any information regarding the existence of these two items, please? Are they in reality "printed books"? Any information sent to me, Mr G. D. ROWLEY, John Innes Horticultural Institution, Bayfordbury, Hertford, England, would be exceedingly welcome.

ROSA

Since 1948, roses of all kinds have been collected and propagated, classified and planted by the John Innes Horticultural Institution at Bayfordbury, Hertford. The present Species Collection, composed of about 800 plants, aims at a complete and authentic presentation of the genus *Rosa* L., the species being laid out in beds according to their morphological affinities, chromosome numbers and geographical distributions in such a way as to attempt a living family tree of the whole genus.

Rosa is a large and complex genus, and many have echoed Linnaeus' misgivings on attempting its classification. A particular source of confusion is the ease with which roses cross with one another and form fertile hybrids, so that wherever seed is distributed by botanic gardens and private rose collections new and unnameable hybrids are continually arising. Some of the oldest and most frequently cited rose names, such as *R. moschata* Mill. and *R. chinensis* Jacq., are the most difficult to match in garden material, if indeed they are in cultivation at all.

The obvious course for a species collection is to scorn all secondhand accessions and concentrate solely on first-hand collections from the wild. This, however, is a painfully slow procedure, for roses occur over the greater part of the northern hemisphere, and collectors are few and far between.

It would therefore be a very great service if anyone able to send propagating material (seeds, suckers, or grafts in winter) of wild roses, especially those of Eastern Asia, would get in touch with me, Mr. GORDON D. ROWLEY, c/o the National Rose Species Collection, Bayfordbury, Hertford, England. When such authentic plants are grown, side by side, under similar conditions for a number of years we should at last be in a position to consider their true classification.

BOTANIC GARDEN MEETING

A meeting was held of representatives of Botanic Gardens during the morning of Saturday, 13 September 1952, in connexion with the Thirteenth International Horticultural Congress (London, September 1952). This meeting was an informal one under the auspices of the International Union of Biological Sciences.

At the meeting, in which the chair was occupied by Dr J. S. L. GILMOUR, it was decided to confine the discussion to three main subjects namely: 1) Labelling, 2) Seed and Plant Exchanges, 3) Arrangement and Distribution of Seed lists.

The interchange of ideas was of great interest. The first subject (Labelling) was introduced by Mr G. D. ROWLEY; the second subject was brought into discussion by Dr H. SENN.

MALAYSIAN COLLECTING TRIPS

Dr A. J. KOSTERMANS and Dr W. MEYER from the Kebun Raya Indonesia, Bogor, returned from a two-month expedition (June-July, 1952) to the Peak of Balikpapan (G. Beratus) in Eastern Borneo. Their collections consist of 500 field-numbers of trees and woody plants (collected by Dr Kostermans) and approximately 1000 field-numbers of mosses, herbs, orchids and ferns (collected by Dr Meyer). In April and May of this year Dr Kostermans collected in Eastern Kutei (Eastern Borneo), bringing back about 1000 field-numbers, chiefly of woody plants. These collections bring the total number of collections made by him in Borneo during the last three years up to approximately 4000.

PERSONALIA

Dr JOSE CUATRECASAS, formerly Professor of Systematic Botany at the University of Madrid and at the University of Bogota and Cali, later Curator of Colombian Botany at the Chicago Natural History Museum and more recently Fellow of the Guggenheim Memorial Foundation, has been appointed Investigator for a "Taxonomic study of the Tropical Plants of Colombia" by the National Science Foundation of Washington. The work, starting August 1, is being carried out at the Chicago Natural History Museum, which is administering the grant.

Miss N. T. BURBIDGE, Systematic Botanist, C.S.I.R.O. Division of Plant Industry, Canberra, A.C.T. Australia has been appointed as Australian Liaison Officer at the Kew Herbarium. This is a two year appointment involving a temporary seconding from her position in Canberra. Miss Burbidge will be arriving in England in December 1952. This appointment is made under a scheme whereby members of the Australian herbaria spend one or two years at Kew working on Australian flora and dealing with enquiries from that country.

Mr HUGH H. ILTIS is continuing his work on the *Capparidaceae* at the Department of Botany and Bacteriology, University of Arkansas, Fayetteville, Arkansas.

M. LEANDRI du Muséum National d'Histoire Naturelle, Laboratoire de Phanérogamie, Paris est parti le 15 Octobre pour Madagascar afin d'étudier la flore et la végétation tropophile de l'ouest de l'île. L'adresse de M. Léandri sera jusqu'au Mars 1953: c.o. Institut de Recherche Scientifique de Madagascar, Tsimbazaza, Tananarive, Madagascar.

MM. Prof. R. HEIM et Prof. H. HUMBERT du Muséum d'Histoire Naturelle de Paris et M. Prof. W. ROBYNS du Jardin Botanique de l'Etat à Bruxelles ont pris part au Congrès de Caracas (Venezuela) pour la Protection de la Nature et ont effectué en Amérique méridionale et centrale divers itinéraires botaniques.

Mr OTTO DEGENER, collaborator in Hawaiian botany for the New York Botanical Gardens since 1935, received the honorary degree of doctor of science by the University of Massachusetts, formerly the Massachusetts State College et Amherst Sunday.

Mr A. L. STOFFERS from the Botanical Museum and Herbarium, Utrecht, left Holland on 4 September 1952 for a one-year visit to the Dutch Antilles. Mr Stoffers is preparing a new flora of this region.

Addition to Merrill's Article on page 124

In the Hortus Bengalensis, 83. 1814, *Pyrostria hexasperma* Roxb. and *Spermacoce nana* Roxb., l.c., are localized as from "Honimoa", while Urtica minima Roxb., l.c. 103 was from "Hamaoon" corrected by Roxburgh in 1832 to "Island of Honimoa". Incidentally the similar "Humaon" for *Quercus incana* Roxb., l.c. 64, was an error for "Kumaon = Kumaun", in northern India. The status of *Urtica minima* Roxb. remains unknown; there is, of course, the possibility that Roxburgh's specimen came from "Kumaun".

New Institute Members

Michigan State College, East Lansing, Michigan — U.S.A. (R).

Commonwealth Scientific and Industrial Research Organisation; Plant Industry, Black Mountain, Canberra — A.C.T. (A).

University of Oxford, Department of Botany, Druce Herbarium, South Parks Road, Oxford, England (R).

Membership Fees 1952

Members which have hitherto hesitated to pay their fees for the current year are requested to do so.

Members in countries without regional treasurers are requested to make payable their subscriptions to *Messrs Vlaer & Kol, Utrecht, Netherlands*, crossed: *"a.c. International Bureau for Plant Taxonomy"*.

A. Individual Persons	$	£	D.fl.	Sw.Kr.
Regular Members	3.—	1.1.—	11.40	15.90
Associate Members	1.—	—.7.—	3.80	5.30
B. Institutes, Societies, etc.				
Supporting Members	50.—	17.10.—	190.—	265.—
Regular Members	25.—	8.15.—	95.—	132.50
Associate Members	10.—	3.10.—	38.—	53.—

Payments can be made in any currency; remittances in other currencies than those listed above are accepted against the exchange rates of the day of payment.

Regnum Vegetabile

Vol. II. *Index Herbariorum.* A guide to the location and contents of the World's Public Herbaria, edited by J. Lanjouw Ph. D. *Part 1. The Herbaria of the World*, by J. Lanjouw Ph. D. and F. A. Stafleu Ph. D.; XVI and 167 pages; 16 × 25 cm; 15 February 1952. Details about contents and *prices for members* are given on p. 41 of Taxon no. 3. Price for *non-members:* Dfl. 13.30. Orders can be sent to the *office* of the I.A.P.T.

Vol. III. *International Code of Botanical Nomenclature*, prepared by the Editorial Committee; 228 pages; 16 × 25 cm; 15 October 1952.

Non-Members: Dfl. 14.— (buckram Dfl. 15.90)

Members (Members are entitled to receive *one* copy against a reduced price):

A. Institutes, Societies, etc.	$	£	D.fl.
Supporting and Regular Members (buckram)	—	—	—
Associate Members	2.—	—.14.6	7.60
buckram	2.50	—.18.—	9.50
B. Individual Members			
Regular Members	2.—	—.14.6	7.60
buckram	2.50	—.18.—	9.50
Associate Members	2.80	1.—.—	10.60
buckram	3.30	1. 4.—	12.50
C. Extra copies Members			
stitched	3.70	1. 6.6	14.00
buckram	4.20	1.10.—	15.90

REGIONAL TREASURERS

Austria: Dr K. H. Rechinger, Naturhistorisches Museum, Botanische Abteilung, Burgring 7, Wien.

Belgium: Prof. W. Robyns, Rijksplantentuin, 236 Koninklijke Straat, Brussel.

Canada: Prof. J. Rousseau, Montreal Botanical Garden, 4101 Sherbrooke Street East, Montreal, Que.

Egypt: Mr Mohammed Drar, Fouad I Agricultural Museum, Dokki, Cairo.

Germany: Dr Walter Domke, Staatsinstitut für Allgemeine Botanik, Jungiusstrasse 6, Hamburg 36.

Great Britain and British Overseas Territories: Mr A. A. Bullock, The Herbarium, Royal Botanic Gardens, Kew, Richmond, Surrey, England.

Italy: Prof. R. E. G. Pichi Sermolli, Herbarium Universitatis Florentinae, Istituto Botanico dell'Universitá, Via Lamarmora no. 4, Firenze.

Netherlands: The International Bureau for Plant Taxonomy and Nomenclature, Lange Nieuwstraat 106, Utrecht. Bankers: Messrs Vlaer & Kol, Utrecht, giro 7247.

Norway: Prof. K. Faegri, Universitet I Bergen, Botanisk Museum, Bergen.

Sweden: Mr Bo Peterson, Botaniska Museet, Lund. Postgiro 43.35.39.

U.S.A.: Dr R. C. Rollins, Gray Herbarium, Harvard University, 79 Garden Street, Cambridge 38, Mass.

"Taxon" is directed by: Prof. J. Lanjouw, Chief Editor, and Dr F. A. Stafleu, Assistant Editor. All correspondence should be sent to the International Bureau for Plant Taxonomy and Nomenclature, 106 Lange Nieuwstraat, Utrecht — Netherlands.
All members of I.A.P.T. receive "Taxon" free of charge. Copies of personal members are for private use only and should not be placed in official libraries.